

Title (en)  
ULTRASONIC TRANSCEIVER

Title (de)  
ULTRASCHALLSENDEEMPFÄNGER

Title (fr)  
ÉMETTEUR-RÉCEPTEUR ULTRASONORE

Publication  
**EP 3614693 A4 20200506 (EN)**

Application  
**EP 18788096 A 20180409**

Priority  
• JP 2017081813 A 20170418  
• JP 2018014876 W 20180409

Abstract (en)  
[origin: EP3614693A1] An ultrasonic transceiver includes: piezoelectric body (2) including opposing surfaces having first electrode (2c) and second electrode (2d) respectively, piezoelectric body (2) being segmented into a plurality of elements (2a,2b) by groove (3) recessed from a surface having first electrode (2c) among the opposing surfaces; conductor (1) electrically connected to first electrode (2c) on each of elements (2a,2b). The ultrasonic transceiver further includes reinforcement section (7) provided in a part of second electrode (2d), the part corresponding to a bottom of groove (3). With this configuration, a decrease in a strength of piezoelectric body (2) in the bottom of groove (3), which is caused by groove (3) provided in piezoelectric body (2), can be prevented and occurrence of a crack can be prevented.

IPC 8 full level  
**H04R 17/00** (2006.01); **B06B 1/06** (2006.01)

CPC (source: EP US)  
**B06B 1/0659** (2013.01 - EP); **B06B 1/0662** (2013.01 - EP US); **G01F 1/662** (2013.01 - US); **G01N 29/223** (2013.01 - US); **G01N 29/2437** (2013.01 - US); **H04R 17/00** (2013.01 - EP)

Citation (search report)  
• [XY] JP 4269751 B2 20090527  
• [X] JP 2011152356 A 20110811 - KONICA MINOLTA MED & GRAPHIC  
• [X] US 6604433 B1 20030812 - AZUMA NAKO [JP], et al  
• [Y] JP 2001159551 A 20010612 - MATSUSHITA ELECTRIC IND CO LTD  
• [A] JP 2009267688 A 20091112 - TOSHIBA CORP  
• See also references of WO 2018193892A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 3614693 A1 20200226**; **EP 3614693 A4 20200506**; **EP 3614693 B1 20240124**; CN 110199530 A 20190903; CN 110199530 B 20210108; ES 2971874 T3 20240610; JP 2018182604 A 20181115; JP 6941763 B2 20210929; PT 3614693 T 20240305; US 11226220 B2 20220118; US 2020088557 A1 20200319; WO 2018193892 A1 20181025

DOCDB simple family (application)  
**EP 18788096 A 20180409**; CN 201880008219 A 20180409; ES 18788096 T 20180409; JP 2017081813 A 20170418; JP 2018014876 W 20180409; PT 18788096 T 20180409; US 201816500391 A 20180409